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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/528,228

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EXAMINER

MAKI, STEVEN D

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/528,228	<b>Applicant(s)</b> YAMAJI ET AL.	
	<b>Examiner</b> Steven D. Maki	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-8, 10-15, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-8, 10-15, 18 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>022309</u> .  | 6) <input type="checkbox"/> Other: _____                          |

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1) A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12-10-08 has been entered.

2) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3) Claims 2-8, 10-15, 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2 and 3, there is no antecedent basis for "the fractionating means". In each of claims 2 and 3, it is suggested to delete --the fractionating means--.

In claim 11 line 3, there is no clear antecedent basis for "said chute". In claim 11 line 3, it is suggested to insert --section-- after "said chute".

In claim 19 line 12, there is no clear antecedent basis for "the chute". In claim 19 line 12, it is suggested to insert --section-- after "the chute"

4) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Phillips et al

6) **Claims 10, 13 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Phillips et al (US 5,879,486).**

As to claim 19, the claimed machine is anticipated by Phillips et al's machine. The claimed single mixer reads on main mixer 36. The claimed chute section reads on duct 57. The claimed slurry delivery conduit reads on duct 44. The claimed "hollow connector section" reads on the combination of conduit 37 and housing 41. The claimed "slurry fractionation port" reads on the opening in housing 41 leading to duct 44. The term "stable" is a relative term which fails to require structure not disclosed by Phillips et al. As to claims 10 and 13, note the disclosed use of Phillips et al's machine.

Hauber et al

7) **Claims 2-8, 10-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hauber et al (US 6,878,321) in view of Miura et al (US 6,193,408) and Sucech et al (US 5,683,635).**

Hauber et al discloses apparatus for making gypsum board comprising mixer 30. Gypsum, water and additives are added to mixer 30 through inlets 32. The mixer 30 mixes the gypsum, water and additives to form a gypsum slurry. Gypsum slurry flows from the **mixer 30** and through outlet 34. Gypsum slurry 38 is discharged from the

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outlet 34 onto a bottom facing sheet 14 (paper or glass fiber mat). Controller 36 controls the amount of gypsum slurry 38 permitted to flow through the outlet 34. The gypsum slurry 38 is spread on the bottom facing sheet 14 using roll coaters 40, 42. Gypsum slurry flows from **mixer 30** and through outlet 48. Gypsum slurry 44 is discharged from the outlet 48 onto the bottom facing sheet coated with slurry 38. The gypsum slurry 44 constitutes a CORE GYPSUM SLURRY 44. Foaming materials can be added to the core gypsum slurry 44 so that its density is less than that of slurry 38. Controller 46 controls the amount of gypsum slurry 44 permitted to flow through the outlet 48. Gypsum slurry flows from **mixer 30** and through outlet 134. Gypsum slurry 138 is discharged from outlet 134 onto a top facing sheet 114. Controller 136 controls the amount of gypsum slurry 138 permitted to flow through outlet 134. The top facing sheet 114 coated with slurry 138 is then applied onto the core slurry 40. Hauber et al does not recite mixer 30 having a "hollow connecting section" and "chute section", which feeds gypsum slurry having "stable density and pressure".

As claim 19, it would have been obvious to one of ordinary skill in the art to use Miura et al's single mixer 10 having housing 20, outlet chute 45 ("hollow connecting section") and slurry discharge conduit 41 ("chute section") as mixer 30 in Hauber et al's apparatus and method for making a gypsum board since Miura et al, also directed to the gypsum board art, teaches that mixer 10 for forming a gypsum slurry as shown in Figures 2-7 is not provided with a dead space in the periphery zone of the disc and thereby does not produce a solid mass in the peripheral zone of the disc of the mixer. Miura et al teaches that solid mass produced in the dead space deteriorates the fluidity

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of the ingredients and slurry within the mixer and degrades mixing performance mixer. Since Miura et al's mixer prevents production of solid mass in the dead space, Miura et al's mixer has improved mixing performance. One of ordinary skill in the art would have been motivated to use Miura et al's mixer 10 as mixer 30 in Hauber et al's process / apparatus to obtain the predicted and expected benefit of improved mixing performance. With respect to "stable density and pressure", a slurry flowing from Miura et al's mixer and through hollow connector section 45 and chute section 41 has a "stable density and pressure" since (1) Miura et al's mixer prevents production of solid mass in dead space and (2) Miura et al provides the mixer with pressure regulator means 43 for controlling internal pressure. The term "stable" is a relative term which fails to require structure not disclosed by Miura et al. In short, there is no difference between the claimed mixer, hollow connector section and chute section as set forth in claim 19 and Miura et al's mixer 10, hollow connector section 45 and chute section 41.

With respect to "slurry fractionation port", it would have been obvious to one of ordinary skill in the art to provide the slurry discharge conduit 41 (chute section) with a "slurry fractionation port" since (1) Hauber et al teaches providing one mixer discharge leading to dual controllers for controlling the discharge of two or more outlets (col. 11 lines 20-25) and (2) Sucech et al shows using a "slurry fractionation port" to provide one mixer discharge 44 leading to two conduits 46, 48 (Figure 1). When viewed as a whole, the applied prior art to Hauber et al, Miura et al and Sucech et al suggest using Miura et al's mixer 10 as mixer 30 in Hauber et al's method / apparatus and providing a "slurry fractionation port" on the slurry discharge conduit 41 such that part of the slurry flows

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through the "slurry fractionation port" and then through controller 36 and outlet 34 and the remainder of the slurry flows through controller 46 and outlet 134. It is emphasized that there is no difference between Miura et al's mixer, outlet chute 45 and slurry discharge conduit 41 and the claimed mixer, hollow connector section and chute section. It is further emphasized that slurry discharge conduit 41 of Miura et al's mixer is a "one mixer discharge" and Hauber et al's disclosure at column 11 teaches one of ordinary skill in the art to fractionate the slurry in "one mixer discharge" such that one part leads to one controller 36 and outlet 34 ("slurry delivery conduit") and another part leads to another controller 136 and outlet 134 (another "slurry delivery conduit").

Sucech et al is additional evidence of the known practice in the gypsum board art to fractionate the slurry from "one slurry discharge". In particular, Sucech et al shows fractionating the slurry in one outlet 44 into two slurries - one flowing through conduit 46 and the other slurry flowing through conduit 48. The branch between outlet 44 and conduits 46, 48 defines a "slurry fractionation port". Only the expected and predicted results of the formation of two slurries having the same composition (one for the bottom sheet and the other for the top sheet) being obtained. With respect to outlet 34 ("slurry delivery conduit"), the term "stable" is a relative term which fails to require structure different from outlet 34 disclosed by Hauber et al. Furthermore, the gypsum slurry is *under fluid pressure* in the outlet 34 ("slurry delivery conduit") since it flows there through to be discharged on the sheet. Claim 19 reads on both of the claimed slurries being used for roll coat and thereby fails to require a core slurry. Stated differently, claim 19 fails to exclude providing the mixer with another opening at a different

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circumferential position for obtaining a core slurry. Claim 19 fails to exclude "controllers". Claim 19 fails to exclude the use of pumps and/or secondary mixers. Claim 19 fails to require the mixing condition of the fractionated slurry separated from the main mixer being the same as the that of the main slurry. Claim 19 fails to require fractionation by pressure of the mixer instead of by use of suction pressure of a pump. In other words, claim 19 fails to require fractionation using only the pressure of the mixer.

As to claims 2, 3, 8, 11 and 12, it would have been obvious to provide "valve means" for opening and closing the fractionation port and to use such valve means to obtain desired flow rate since Hauber et al suggests providing a controller (36, 46, 136) for regulating flow of a gypsum slurry. As to claim 3, it would have been obvious to provide a casing as claimed since it is taken as well known / conventional per se to enclose a valve and its associated ports within a casing. As to claim 8, it would have been obvious to one of ordinary skill in the art to provide the claimed driving device and drive control means since it is taken as well known / conventional in the art to operate a valve using driving device and drive control means. The suggestion to use a "valve" to control flow of gypsum slurry comes from Hauber et al instead of the official notice.

As to claims 4-6, it would have been obvious to one of ordinary skill in the art to provide Hauber et al's gypsum board making apparatus with the claimed foam inlet and use it to introduce foam into the slurry since Sucech et al suggests providing foam feeding inlets 34, 36 for the branch conduits 46, 48 so that the gypsum is not too hard..



As to claim 7, the particular location (top wall) for the fractionation port on the chute section / hollow connector section would have been obvious and could have been determined without undue experimentation in view of (1) hollow connector section 45 and chute section 41 shown by Miura et al in Figure 3 and (2) the suggestion from Hauber et al and Sucech et al to split (fractionate) one flow line into at least two separate flow lines for gypsum slurries.

As to claims 13, 14 and 17, Hauber et al teaches the use of roll coaters 40, 42. With respect to mixing foam / foaming agent, see comments on claims 4-6.

**8) Claims 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hauber et al (US 6,878,321) in view of Miura et al (US 6,193,408) and Sucech et al (US 5,683,635) as applied above and further in view of Seecharan et al (US 6,190,476).**

As to claims 15 and 18, it would have been obvious to one of ordinary skill in the art to provide Hauber et al's apparatus with densification mixers 55, 54 as disclosed by Seecharan et al and use them to perform the claimed agitating step for the slurries delivered to the paper sheets since Seecharan et al suggests using such high densification mixers to prevent the coating layers for the paper sheets from having too low a density which interferes with the bond of the gypsum to the paper.

#### Remarks

9) Applicant's arguments with respect to claims 2-8, 10-15, 18 and 19 have been considered but are moot in view of the new ground(s) of rejection.

"Attachment 1" referred to by applicant on page 12 of the response filed 12-10-08 has not been received..

The 132 declaration by Niimi filed 12-10-08 has been considered but is not persuasive of non-obviousness in view of (1) the new ground of rejection and (2) the following comments: The evidence in the 132 declaration is not commensurate in scope with the claims. Examples: Claim 19 reads on both of the claimed slurries being used for roll coat and thereby fails to require a core slurry. Claim 19 fails to exclude the use of pumps and/or secondary mixers. Claim 19 fails to require the mixing condition of the fractionated slurry separated from the main mixer being the same as the that of the main slurry. In the 132 declaration filed 12-10-08, Niimi states and examiner agrees that Hauber et al teaches the conventional technique of fractionation in which the slurry is fractionated directly from the mixing area in the mixer. However, Hauber et al is not limited to this conventional technique. See col. 11 lines 17-28 of Hauber et al.

10) No claim is allowed.

11) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven D. Maki/  
Primary Examiner, Art Unit 1791

Steven D. Maki  
March 1, 2009